



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/943,887	08/30/2001	Haim Weissman	010455	2079

23696 7590 05/21/2004

Qualcomm Incorporated
Patents Department
5775 Morehouse Drive
San Diego, CA 92121-1714

EXAMINER

LEE, JOHN J

ART UNIT	PAPER NUMBER
----------	--------------

2684

DATE MAILED: 05/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/943,887

Applicant(s)

WEISSMAN, HAIM

Examiner

JOHN J LEE

Art Unit

2684

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 August 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-58 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 9-29 and 38-58 is/are allowed.
- 6) ☒ Claim(s) 1-8 and 30-37 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 5.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. **Claims 1 – 8 and 30 – 37** are rejected under 35 U.S.C. 102(b) as being anticipated by Kawano (US Patent number 4,704,733).

Regarding **claims 1 and 30**, Kawano discloses that a radio-frequency (RF) repeater (Fig. 2 and abstract). Kawano teaches that a first repeating section (2 through 8 in Fig. 4), which is adapted to receive and amplify forward-signals from a first transceiver so as to generate amplified-forward-signals (Fig. 2, 4 and column 3, lines 62 – column 4, lines 26, where teaches first repeating section receives signal and amplified downlink signal from subscriber) and to radiate the amplified-forward-signals to a second transceiver (4 through 10 in Fig. 4) (Fig. 2, 4 and column 3, lines 62 – column 4, lines 26, where teaches transmitting the amplified signals to the antenna (4)), and to receive and amplify reverse-main-signals from the second transceiver so as to generate amplified-reverse-main-signals (column 5, lines 5 – 32, Fig. 2, 4, and column 3, lines 62 – column 4, lines 26, where teaches second repeating section receives amplified reverse uplink signal from subscriber) and to transmit the amplified-reverse-main-signals to the first transceiver (column 5, lines 5 – 32, Fig. 2, 4, and column 3, lines 62 – column 4, lines 26, where teaches transmits the amplified reverse downlink signal to the subscriber). Kawano

teaches that a second repeating section (Fig. 2, 4), which is adapted to receive and amplify reverse-diversity-signals from the second transceiver so as to generate amplified-reverse-diversity-signals (Fig. 2, 4 and column 4, lines 27 – column 5, lines 26) and to transmit the amplified-reverse-diversity-signals to the first transceiver (Fig. 2, 4 and column 4, lines 27 – column 5, lines 26, where teaches second repeating section receives amplified reverse uplink signals and transmits the amplified signal to transceiver).

Regarding **claims 2 and 31**, Kawano discloses that a housing which contains the first and second repeating sections (Fig. 2, 4 and column 4, lines 27 – column 5, lines 26).

Regarding **claims 3 and 32**, Kawano discloses that the forward-signals are not received by the second transceiver, and the reverse-main-signals and the reverse-diversity-signals are not received by the first transceiver (Fig. 2, 4 and column 3, lines 62 – column 4, lines 53).

Regarding **claim 4**, Kawano discloses that the reverse-main-signals and the reverse-diversity-signals are generated from a reverse-signal transmitted from the second transceiver (Fig. 2, 4 and column 4, lines 27 – column 5, lines 26).

Regarding **claims 5 and 34**, Kawano discloses that the first repeating section comprises a first antenna (2 and 8 in Fig. 2) which receives the reverse-main-signals, and wherein the second repeating section comprises a second antenna (4 and 10 in Fig. 2) which receives the reverse-diversity-signals (Fig. 2, 4 and column 4, lines 27 – column 5, lines 26).

Regarding **claims 6 and 35**, Kawano discloses that the first and second antennas are separated by a distance within a range of 1-6 wavelengths of the reverse-main-signals and the reverse-diversity-signals (Fig. 2, 4 and column 4, lines 27 – column 5, lines 26).

Regarding **claims 7 and 36**, Kawano discloses that the first and second antennas are adapted to receive differently polarized signals (Fig. 2, 4 and column 4, lines 27 – column 5, lines 26).

Regarding **claim 33**, Kawano discloses all the limitation, as discussed in claims 1 and 4.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 8 and 37** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawano in view of Grube et al. (US Patent number 5,179,720).

Regarding **claims 8 and 37**, Kawano does not specifically disclose the limitation “the first and the second repeating sections are adapted to introduce a time differential, time delay, between reverse main signal and reverse diversity signal”. However, Grube discloses the limitation “the first and the second repeating sections are adapted to introduce a time differential between reverse main signal and reverse diversity signal” (column 3, lines 24 – 67, Fig. 1, and column 5, lines 31 – 60, where teaches repeater,

Art Unit: 2684

includes first section and second section, adapts different TDM time slot for inbound radio signals). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the Kawano system as taught by Grube, provide the motivation to achieve improving signal reception in repeater system.

Allowable Subject Matter

5. Claims 9 – 29 and 38 – 58 are allowed.

Claims 9 – 29 and 38 – 58 are allowable over the prior art of record because a search does not detect the combined claimed elements as set forth in the claims 9 – 29 and 38 – 58.

As recited in independent claims 9, 38, 56, and 57, none of the prior art of record teaches or fairly suggests that RF repeater system comprises a first repeater unit and a second repeater unit, which is adapted to receive the amplified forward signals from the cabling and to further amplify the amplified forward signals so as to generate resultant forward signals and to radiate the resultant forward signals to a second transceiver, and which is adapted to receive and amplify reverse main signals and reverse diversity signals from the second transceiver so as to generate respectively amplified reverse main signals and amplified reverse diversity signals and to convey the amplified reverse main signals and the amplified reverse diversity signals to the first repeater unit via the cabling, and wherein the first repeater unit is adapted to further amplify the amplified reverse main signals and amplified reverse diversity signals so as to generate respective resultant reverse main signals and resultant reverse diversity signals and to transmit the resultant

Art Unit: 2684

reverse main signals and the resultant reverse diversity signals to the first transceiver, and together with combination of other element as set forth in the claims 9 – 29 and 38 – 58. Therefore, claims 9 – 29 and 38 – 58 are allowable over the prior art of records.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Doner et al. (US Patent number 6,088,592) discloses Wireless System Plan Using in Bandtranslators with Diversity Backhaul to Enable Efficient Deployment of High Capacity Base Transceiver System.

Judd (US Patent number 6,731,904) discloses Side-to-Side Repeater.

Kawano et al. (US Patent number 4,727,590) discloses Mobile Radio Communication System with Repeater Station Grid.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

(703) 308-9051, (for formal communications intended for entry)

Or:

(703) 308-6606 (for informal or draft communications, please label
"PROPOSED" or "DRAFT").

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).

Art Unit: 2684

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **John J. Lee** whose telephone number is (703) 306-5936. He can normally be reached Monday-Thursday and alternate Fridays from 8:30am-5:00 pm. If attempts to reach the examiner are unsuccessful, the examiner's supervisor, **Nay Aung Maung**, can be reached on (703) 308-7745. Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-4700.

J.L.
May 14, 2004

John J Lee



NICK CORSARO
PATENT EXAMINER